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Management of powdery scab pathogen infection caused by *Spongospora subterranea* f. sp. *subterranea* in the potting mediums used for G1 seed potato production under poly tunnels

C. Ranasinghe[1*], K.P.H. Chathuranga[1], W.M.A.S. Bandara[1], S.M.A.P. Navarathna[2] and D.M.C.S. Dassanayake[2]

[1] Agriculture Research Station, Sita Eliya, Sri Lanka
[2] Polytunnel Complex, Seed and planting material Office, Sita Eliya, Sri Lanka

Abstract
Using high-quality initial planting materials ensures the production of high-quality seed potatoes. Under polytunnels, the Department of Agriculture maintains a program for producing high-quality seed potatoes. Very recently it was reported that infection of powdery scab pathogen caused by *Spongospora subterranea* f. sp. *subterranea* in the soilless potting media used for that program. It is a quarantine pathogen, and there are currently no effective management techniques in place for it. As a result, this study was designed to investigate fumigants and fungicides for managing this infection. Powdery scab infected soilless media were collected from the G1 seed potato production polytunnel. Those were treated with fumigants; methamsodium (40 mL/L), formalin (100 mL/L), hydrogen peroxide (0.25 mL/L), and fungicides; mancozeb (2g/L), amisulbrom (0.5 mL/L, 1.0 mL/L, 1.5 mL/L) and kept for two weeks by covering a black polythene. The treated media were filled into grow bags and sprouted seed potato (var. Redlasoda) were planted one tuber per bag. For control untreated media was used. Three replicates for each treatment were kept according to the completely randomized design. Plants were maintained following the DOA recommended agronomic practices. Number of root galls per plant was recorded in weekly intervals from the age of two months to three months. At the end of the experimental period, no of infected tubers per plant and total yield per plant were recorded. The lowest mean number of root galls per plant (1.93±0.02, p≤ 0.05) was observed in amisulbrom (1.5mL/L) treatment followed by methamsodium and amisulbrom (1.0mL/L) while untreated growing medium showed the highest (7.49±0.02). The lowest percentage of infected tubers per plant was also recorded in amisulbrom 1.5 mL/L treatment. But it was not significantly different from that of methamsodium, mancozeb and other two amisulbrom treatments. The highest yield per plant was observed in methamsodium treatment, but it was not significantly different with other treatments and the control. Our results highlighted that fumigation of soilless medium with 1.5 mL/L amisulbrom and 40 mL/L methamsodium has the potential to reduce powdery scab infection. However, further investigations are required by monitoring pathogen inoculum level, medium condition and environmental factors.

Keywords: Fumigants, Fungicide, Powdery scab, Seed potato

[*]***Corresponding Author:*** *c*hithranir@yahoo.com